Water Heater Unit

Webasto
Feel the drive

***Thermo Top C* Auxiliary Heating**

e1
00 0002

Installation Instructions

Mercedes-Benz E-Class BR 211 / CLS BR 219

Gasoline and diesel
from the 2003 model
For left-hand drive vehicles only
Not for AMG or AMG look

WARNING!

Hazard warning:

Incorrect installation or repair of Webasto heating systems may cause a fire or result in the emission of carbon monoxide, which can be fatal. Serious or fatal injuries can be caused as a result.

Specialist company training, technical documentation, specialized tools and equipment are required to install and repair Webasto heating and cooling systems.

NEVER attempt to install or repair Webasto heating or cooling systems if you have not successfully completed the company training and thereby acquired the required technical skills or if you do not have access to the required technical documentation, tools and equipment needed to carry out correct installation and repairs.

ALWAYS follow all Webasto installation and repair instructions and observe all warning instructions.

Webasto does not accept any liability for defects and damage that are attributable to an installation by untrained staff.

Doc. No.: 5001169A Kit No.: 5001168A

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Validity

Manufacturer	Model	Type	EG-BE No. / ABE
Daimler-Chrysler	E Class	211	e1 * 2001 / 116* 0213
Daimler-Chrysler	CLS Class	219	e1 * 2001 / 116* 0295

Engine type	Engine	Power in kW	Engine capacity in cm³
200 CDI	Diesel / R4	90	2148
220 CDI	Diesel / R4	110	2148
270 CDI	Diesel / R5	130	2685
280 CDI	Diesel / V6	140	2987
280 CDI 4MATIC	Diesel / V6	140	2987
320 CDI	Diesel / V6	165	2987
320 CDI 4MATIC	Diesel / V6	165	2987
400 CDI	Diesel / V8	191	3996
420 CDI	Diesel / V8	231	3996
200 NGT	Gasoline / R4	120	1796
200 K	Gasoline / R4	120	1796
240	Gasoline / V6	130	2597
240 4MATIC	Gasoline / V6	130	2597
280	Gasoline / V6	170	2996
280 4MATIC	Gasoline / V6	170	2996
320	Gasoline / V6	165	3199
320 4MATIC	Gasoline / V6	165	3199
350	Gasoline / V6	200	3498
350 4MATIC	Gasoline / V6	200	3498
500	Gasoline / V8	225	4966
500 4MATIC	Gasoline / V8	225	4966

Vehicle and engine types as well as equipment variants, which are not listed in these installation instructions, have not been tested. Installation according to these installation instructions may, however, be possible.

Heater Unit / Installation Kit

Amount	Description	Order No.:
1	Scope of delivery TT-C Diesel W211 / W219	9014163 A
1	Scope of delivery TT-C Gasoline W211 / W219	9014164 A

Foreword

These installation instructions apply to vehicles Mercedes-Benz E-Class BR 211 / CLS BR 219 with Gasoline and dieselengines, for validity, see page 2 - as from model year 2003 and later, assuming technical modifications to the vehicle do not affect installation, any
liability claims excluded. Depending on the vehicle version and equipment, modifications may be with respect to these “Installation Instructions”.

However, the stipulations in the "installation instructions" and "operating and maintenance instructions" for the *Thermo Top C/P/E* are to be observed in any event.
The corresponding rules of technology and any information from the vehicle manufacturer should be observed during the installation work.

General Instructions

Installation should be carried out according to the general, standard rules of technology. Unless specified otherwise, fasten hoses, lines and wiring harnesses to original vehicle lines and wiring harnesses using cable ties.
Sharp edges should be fitted with edge protectors (split open plastic hose).
Spray unfinished body areas, such as for example bore holes, with anti-corrosion wax (Tectyl 100K, Order No. 111329)!

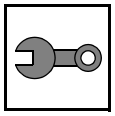
After installation, release the auxiliary heater function using the DC Star diagnosis (coding).

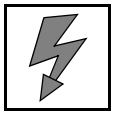
Special Tools

- Torque spanner for 2.0 - 10 Nm
- Vise-grip wrench

Explanatory Notes on the Document

To provide you with a quick overview of the individual working steps, you will find an identification mark on the outside top right corner of the page in question.

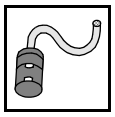
Mechanics 

Electrics 

Water connection

Fuel connection

Exhaust system

Combustion air 

Special features are highlighted using the following symbols:

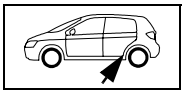
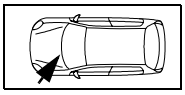
Specific risk of injury or fatal accidents.

Specific risk of damage to components.

Specific risk of fire or explosion.

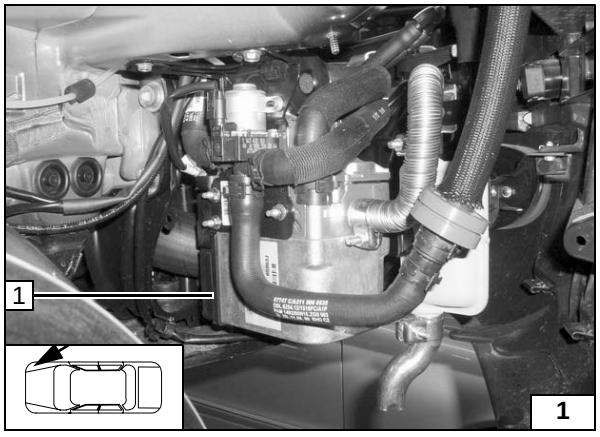
Reference to general installation instructions of Webasto components or to the manufacturer's vehicle-specific documents.

Reference to a special technical feature.

  The arrow in the vehicle icon indicates the position on the vehicle and the viewing angle.

Preliminary Work

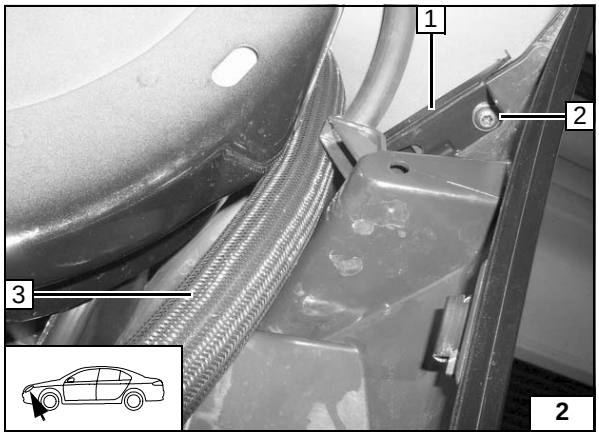
- Slide the passenger seat backwards as far as possible.
- Remove the vehicle keys from the ignition.
- Disconnect the battery. (in the trunk)
- Remove the side cover of the fuse box on the driver's side of the dash board.
- Remove the footwell panel under the dashboard on the passenger side.
- Remove the A-pillar panel in the passenger side.
- Remove the floor cover in the passenger footwell area.
- Loosen the footrest plate located behind this.
- Remove the cover from middle console around the gear shift stick (optional).
- Remove the A-pillar panel in the passenger side.
- Loosen the cable conduit cover next to the fond armrest.
- Open the hood.
- Let off pressure in the cooling system.
- Copy the factory number from the original type label to the duplicate type label.
- Remove years that do not apply from the duplicate label.
- Attach the duplicate label (type label) in the appropriate place.
- Open the fuel tank cap, ventilate the tank.
- Close the fuel tank cap again.
- Remove the right front and rear wheels
- Remove the front part of the right wheel house panel.
- Loosen the front section of the wheel house panel and lift it to the back.
- Remove the lower right section of the engine enclosure under the rocker panel (2 sections).
- (CLS only) loosen the front grill
- Loosen the bumper on the right side of the vehicle.
- Remove right headlight (CLS: 2 screws on the top, 1 screw from the wheel house).
- Remove the engine design cover (pull off).
- Remove the covers in the left and right engine area (turn locks 90°).
- Remove the combination filter housing (1 plastic nut, left and right snaps).
- Remove the windshield wipers.
- Pull off the gasket that runs across the water reservoir cover.
- Remove the water reservoir cover, remove the drain hose.
- Remove the windshield wiper arm and motor.



Heater Unit Installation Location

1 Heater unit

Installation location



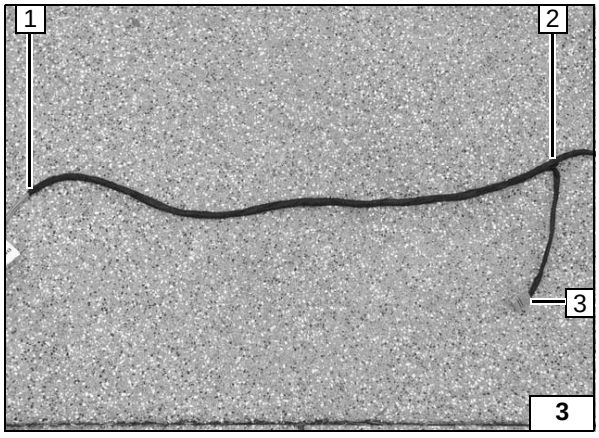
Loosen the bumper on the side facing the wheel well:
Loosen the screws, move the clamping bar to the front and remove it.

1 Clamping bar
2 Bolt
3 Coolant hose to the heater unit (will be added Later, not yet present during disassembly)

Tips and Tricks

To route wiring harnesses and wires through grommets, cable ducts or tight areas, we recommend using the mecanyl fuel line. This, for example, is pushed through a cable duct until the desired point is reached, the wiring harness is fastened with insulation tape and pulled behind.

Tips and Tricks

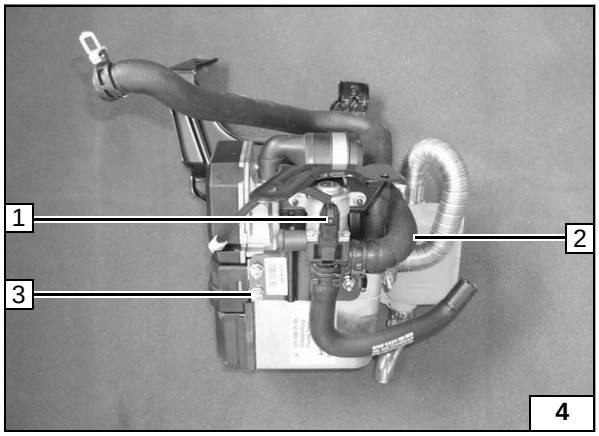


Preparing the wiring harness

Remove the wiring harness twine between the connection of the fuel pump plug and the unwrapped section.

1 Beginning of the wrapped section
2 Disconnecting the fuel pump connector
3 Fuel pump connector (blue)

Removing the wiring harness twine

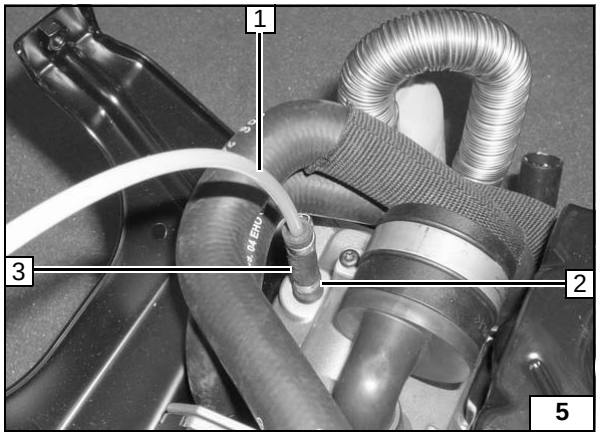


Preparing the Heater Unit

Place the solenoid valve and bracket on the stay bolts in the heater unit and fasten with the flanged nuts.
Fasten the preassembled coolant hose with the spring band clamp to the solenoid valve.
Replace the connector on the solenoid valve.

1 Solenoid valve connector
2 Preassembled coolant hose with clamp
3 M6 flanged nuts [3x]

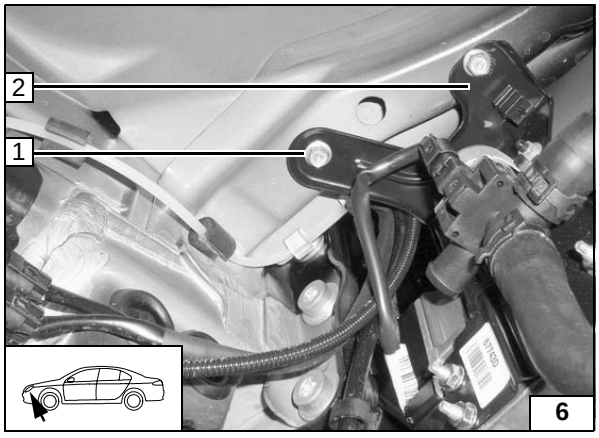
Connecting the solenoid valve



Connect the mecanyl fuel line to the heater fuel line nipple with the hose section and clamp.

1 Fuel line
2 Universal clamp (white color identification) [2x]
3 Hose section

Connecting the fuel line

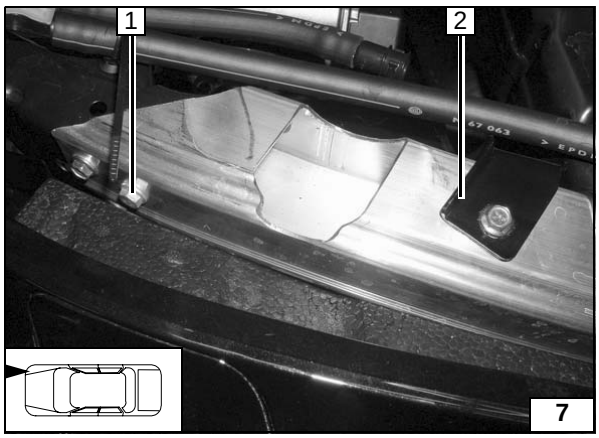


Installing the heater unit

Loosely pre-assemble the solenoid valve bracket on the wheel well with two screws.

1 M6x12 collar screws [2x]
2 Solenoid valve bracket

Installing the solenoid valve



Loosely pre-assemble the heater unit bracket on the bumper cross member with two screws.
Tighten all fastening bolts.
Plug the wiring harness connector into the heater.
Route the wiring harness to the right suspension strut mount.

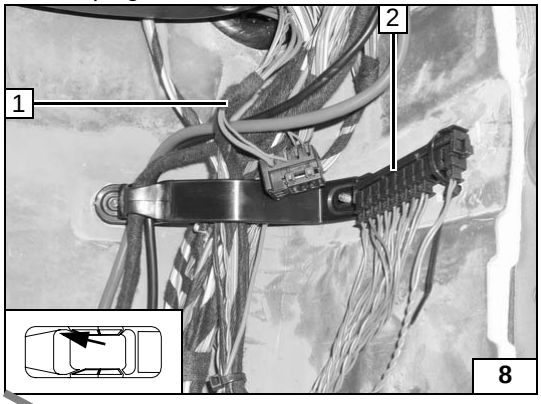
1 M6x12 collar screws [2x]
2 Heater unit bracket

Assembling the heater unit

Electrical Connections

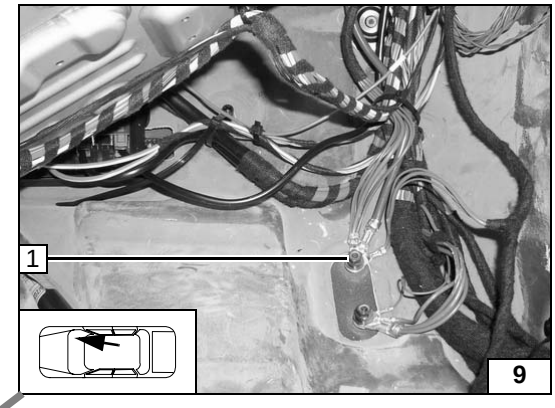
CAN junction

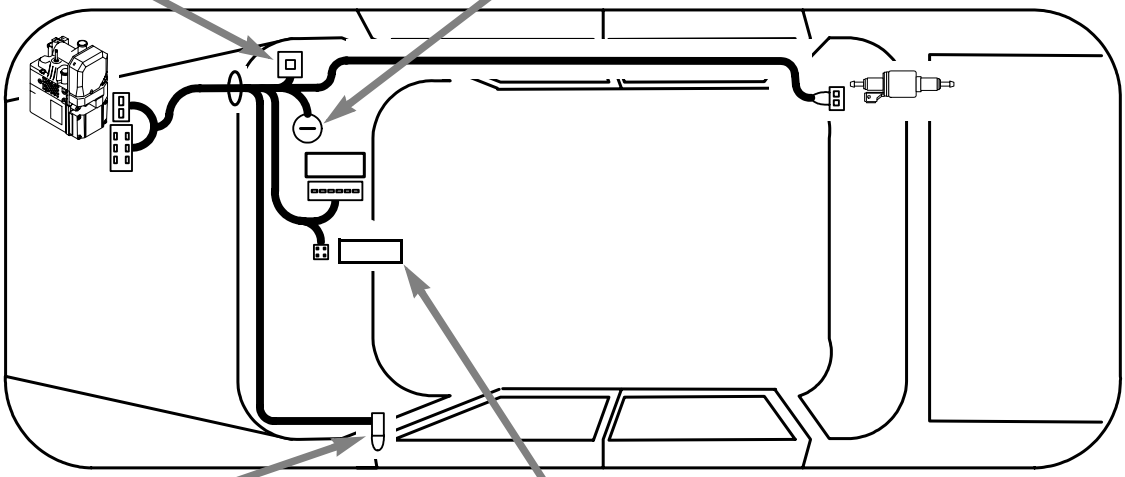
1 Heater wiring harness
2 CAN plug connector



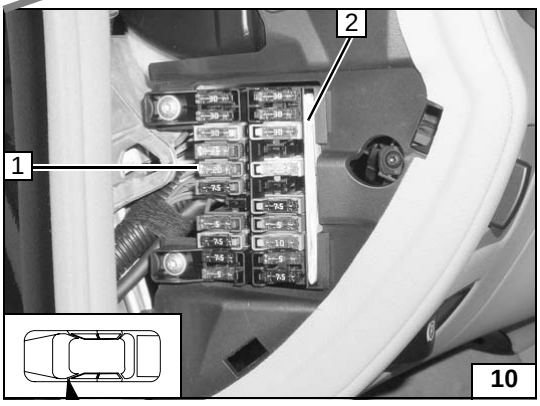
Ground connection

1 Grounding point in passenger foot area



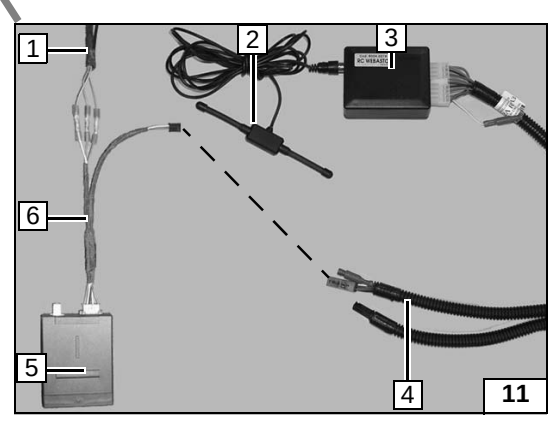


Wiring harness installation diagram



Dashboard fuse box

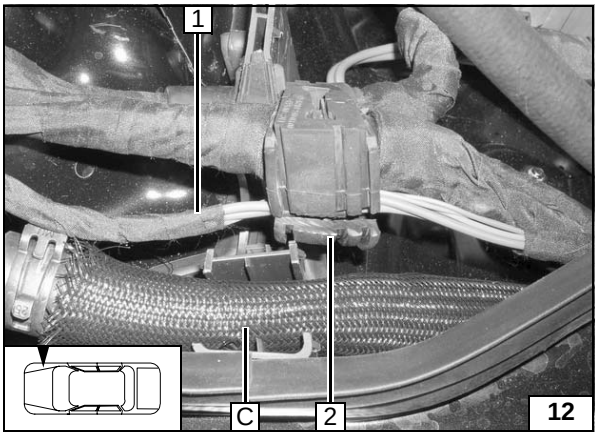
1 Fasten the heater unit fuse holder on the free slot in the left row, fifth from the top (position 25)
2 Dashboard fuse box left



T90 and SPAL remote control elements

(schematically pre-assembled)

1 Heater harness
2 Remote antenna
3 SPAL receiver
4 Remote harness
5 T90 remote receiver
6 Y-adapter harness



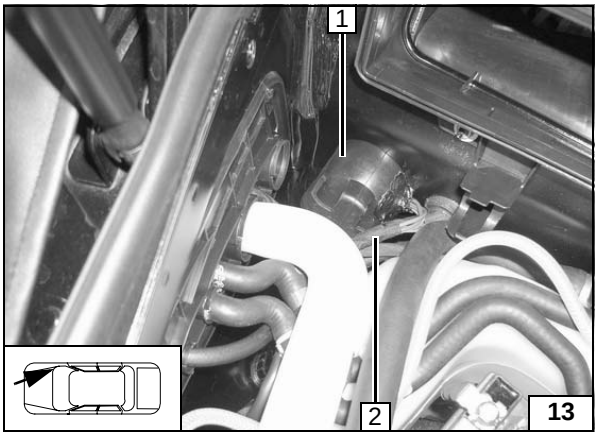
Installing the wiring harness

Unclip the harness conduit cover on the right suspension strut mount, remove the harness grommet from the guide. Cut the side of the grommet and insert the Webasto wiring harness. Seal the grommet with adhesive sealant and reinstall in guide.

Wiring harness routing

1 Webasto wiring harness
2 Cut open grommet

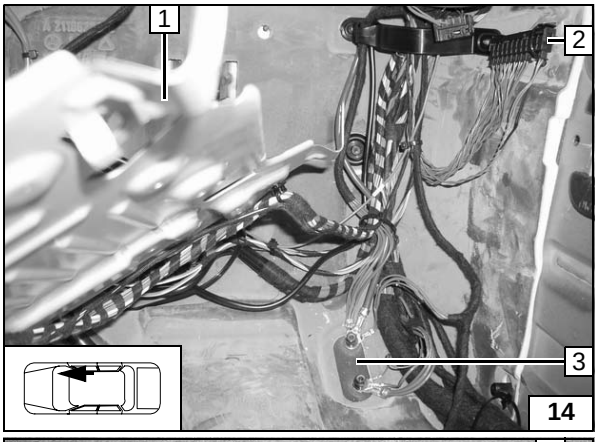
The figure shows coolant hose C covered with braided hose protection.



Route the wiring harness under the hoses to the rear bulkhead.
Cut open the rubber sleeve.
Route wiring harness to passenger compartment.
Seal the protective rubber sleeve with sealant.

Wiring harness routing

1 Protective rubber sleeve
2 Wiring harness

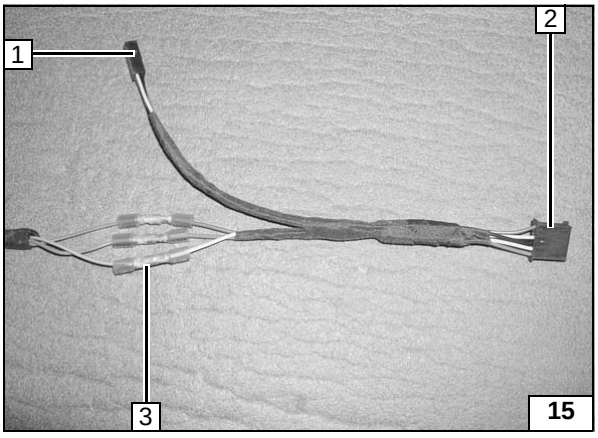


Make electrical connection

Place wiring harness in passenger compartment: Insert CAN plug in the plug connector. Secure the ground cable to existing ground point, route the fuse holder behind the dash board to the fuse box, route the fuel pump connector to the cable conduit in the rocker panel, leave the wiring harness for the T90 remote receiver in the foot area, separate the six-pin plug from the wiring harness.

Distribution of wiring harnesses

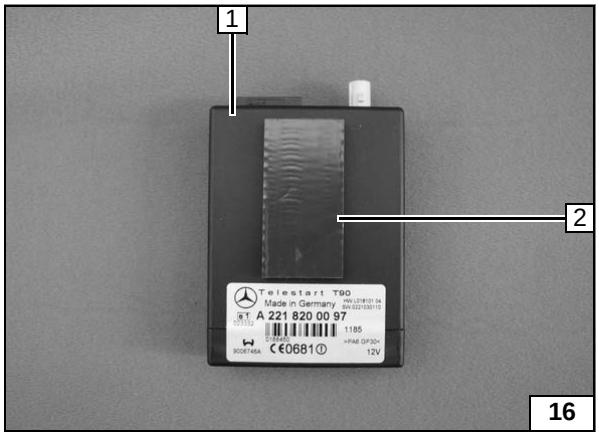
1 Footrest plate
2 CAN plug connector
3 Grounding point



Connect the red and brown wires from the Y adapter to the wires of the same color in the remote wiring harness.
Connect the yellow wire from the Y adapter to the gray-blue wire in the remote wiring harness.
Crimp and shrink the connectors.

Y- adapter connection

1 Connector for SPAL receiver wiring harness
2 T90 remote connector (Y adapter)
3 Crimp shrink connectors [3x]

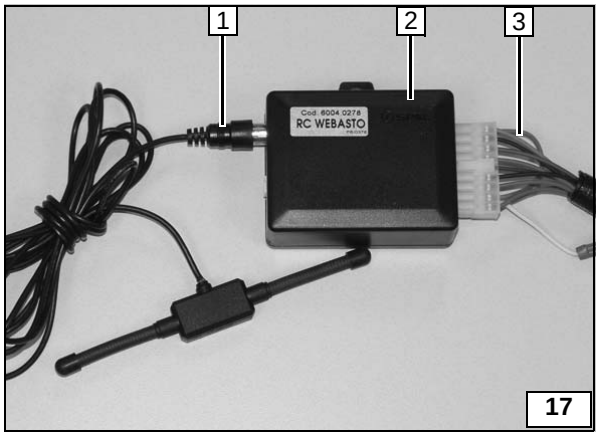


T90 Remote Receiver

Attach Velcro strips to the receiver.

1 Receiver
2 Velcro strips

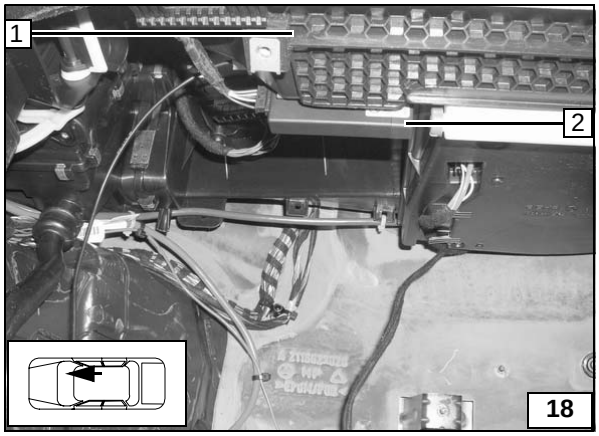
T90 Remote pre-paration



SPAL Remote Receiver

1 Receiver antenna
2 SPAL remote receiver
3 Remote harness from Y-adapter harness

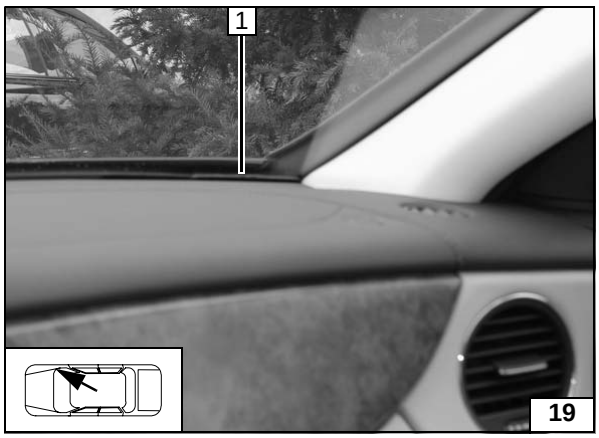
SPAL Remote pre-paration



Note:
Note the chapter “Final work“on page 22“
Fasten the T90 remote receiver on the rear side of the glove compartment.
Fasten the SPAL remote receiver next to the T90 remote receiver using nylon wire ties.

1 Glove compartment housing
2 T90 remote receiver

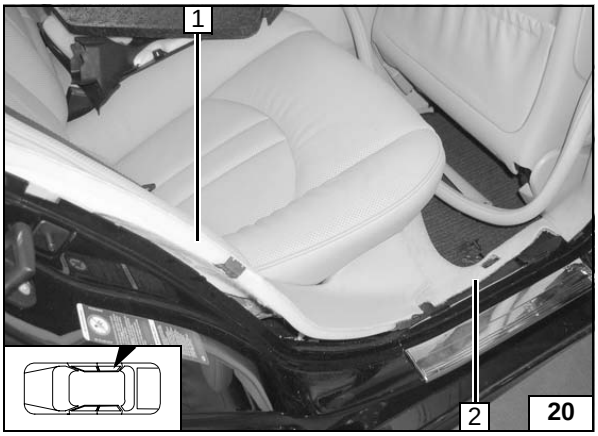
T90 / SPAL remote receiver assembly



Glue the SPAL remote receiver antenna to the black area on the windshield.

1 Windshield antenna

Antenna installation

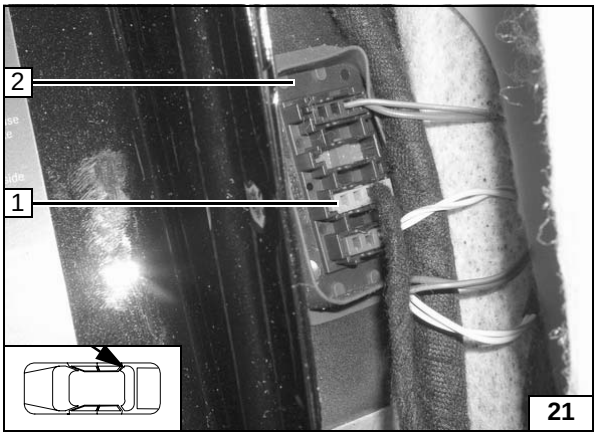


Route the wiring harness for the fuel pump

Route the connector for the wiring harness for the fuel pump through the cable conduit to the rear seat bench.
Route behind the back cover next to the arm rest to the plug connector.

1 Cable conduit cover
2 Rocker panel cable conduit

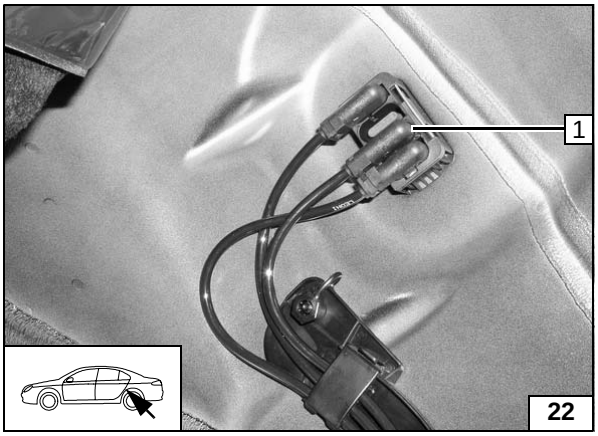
Place in cable conduit



Remove the red gasket piece from the free slot in the terminal strip (no longer needed).
Insert the connector for the fuel pump wiring harness in the slot.

1 Connector for the fuel pump wiring harness
2 Wheel case terminal strip

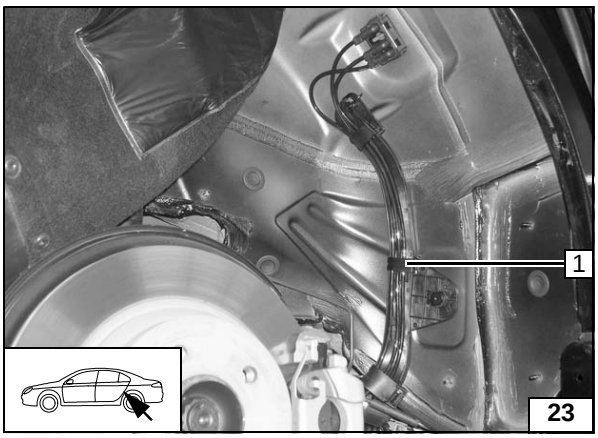
Connector for fuel pump in passenger compart-ment



Plug the connector on the short wiring harness to the fuel pump from the wheelhouse to the corresponding slot.

1 Plug

Fuel pump connector in wheel house



Open the fastening lugs for the wiring harness guide.
Route the wiring harness down through the guide to the fuel pump and fasten.

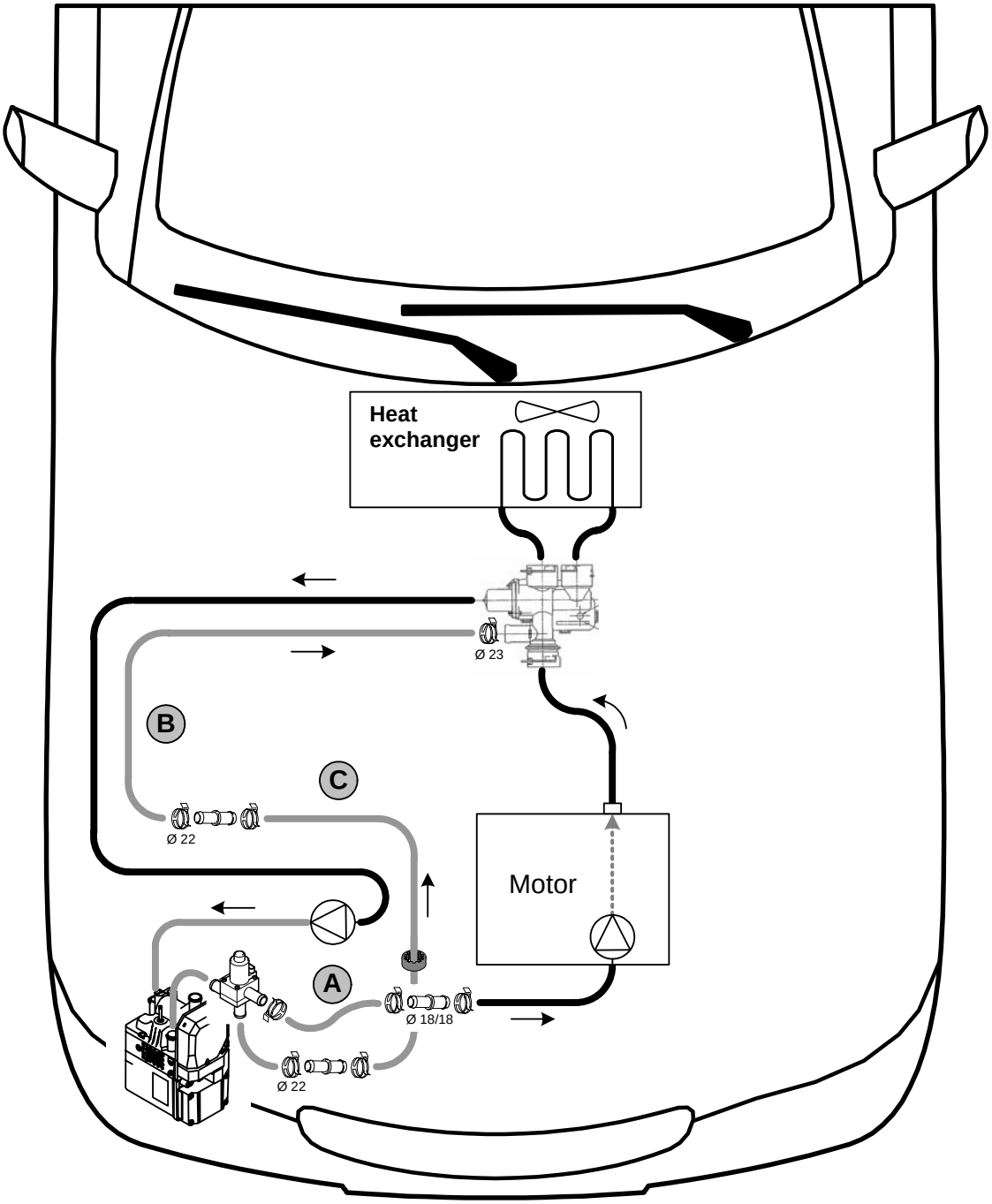
1 Wiring harness guide fastening lug

Wiring harness guide in the wheel house

Water Connection

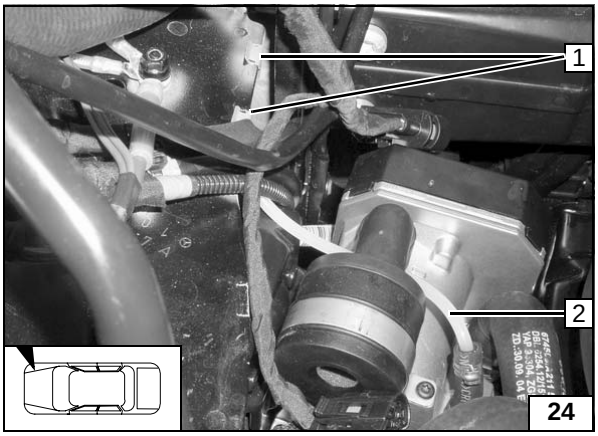
Attention:
Any coolant running off should be collected using an appropriate container!
Install hoses so that they are kink-free. Unless specified otherwise, always fasten using cable ties.
Position spring band clamps so that no other hose can be damaged!
The connection is based on the following diagram:

All vehicles



Water installation diagram

All undesignated clamps are Ø 25mm spring band clamps!
All undesignated coolant hose couplers are Ø 15x18.

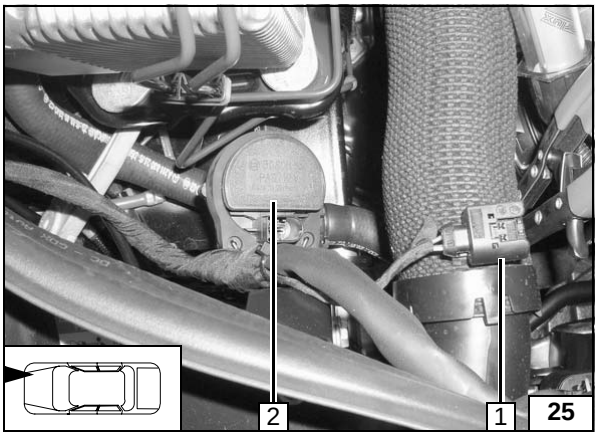


Route the fuel line under the air intake silencer to the wheel house cross member. Fasten to cross member with it two fastening clips and route to the wheel house.

1 Fastening clips [2x]
2 Fuel line

Fuel line installation

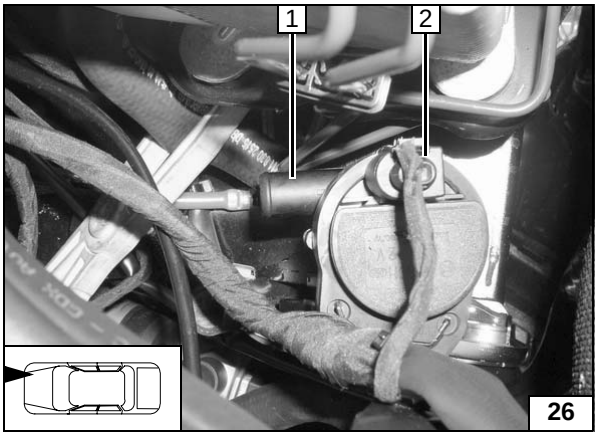
Water Connection



Disconnect both coolant hoses to the original vehicle electric water pump with pliers and remove.
Pull the plug off.

1 Water pump connector
2 Water pump

Water pump preparation

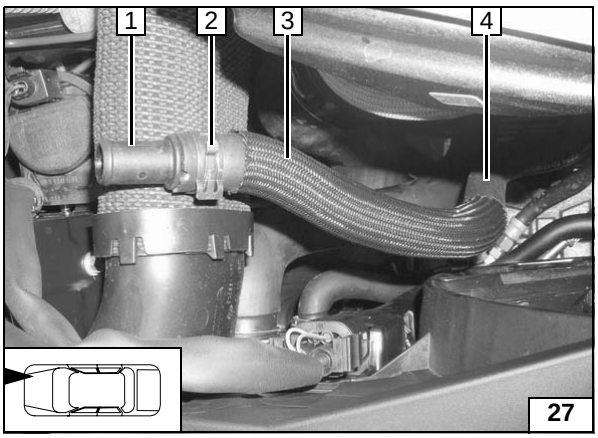


Turn the water pump in the bracket about 180°.

Check that the hose supports move easily to the lines in the ABS unit.
Replace the connectors.

1 Hose supports
2 Water pump connector

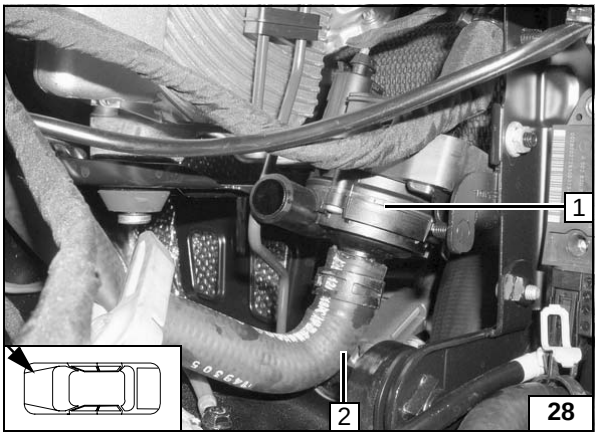
Turning the water pump



Shorten the enclosed braided hose protection by 380 mm.
From this 380 mm long piece, cut off two 100 mm long pieces.
Place one 100 mm long piece on the hose to the mechanical water pump.
Insert the coolant hose coupler and fasten with a clamp.

1 Coolant hose coupler 18x18
2 Spring band clamp Ø25 mm
3 Braided hose protection 1=100 mm
4 Hose to the mechanical water pump

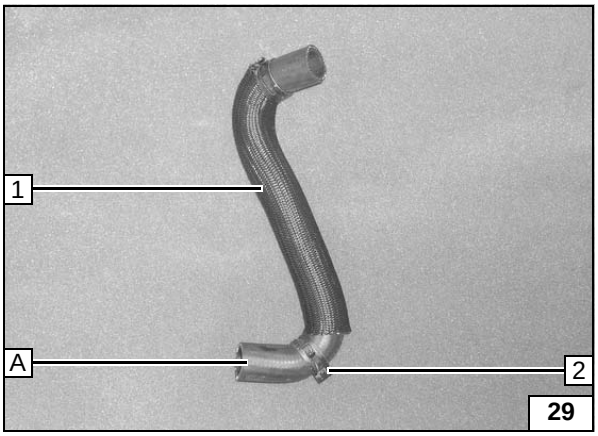
Coolant hose preparation



Connect the disassembled coolant hose back on the electric water pump as shown in Figure 28.

1 Water pump
2 Coolant hose

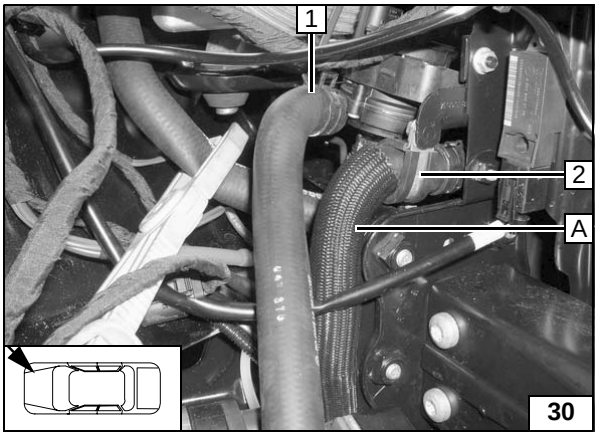
Assembling the coolant hoses



Put the braided hose protection on the end of the moulded hose.
Pre-assemble two clamps.

1 Braided hose protection 1=100 mm
2 Spring band clamps Ø25 mm [2x]
A Moulded hose

Coolant hose pre-assembly

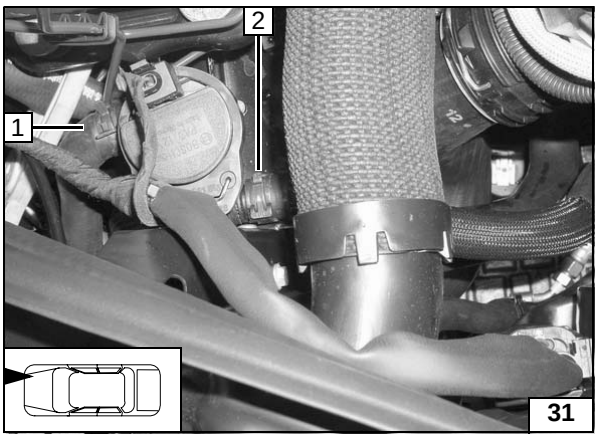


Before connecting, fill the coolant hoses with coolant. Connect the preassembled coolant hose to the solenoid valve. Connect the other end of the hose to the mechanical water pump.

Fasten moulded hose to the original vehicle stay bolts with the tube clamp.
Fasten the preassembled hose from the heater unit coolant inlet to the free supports on the water pump.

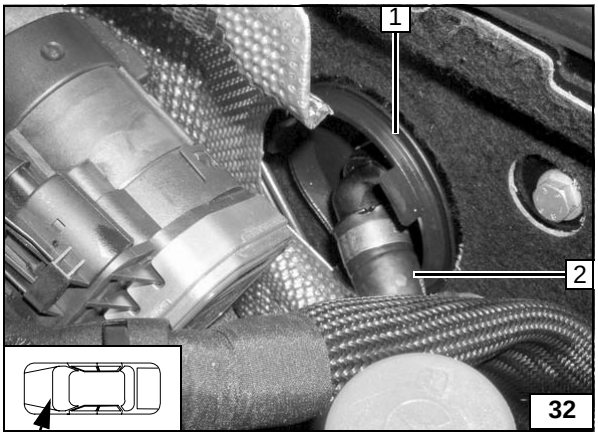
1 Hose for heater unit coolant inlet
2 Rubberised tube clamp Ø25, nut M6
A Moulded hose

Assembling the coolant hoses



1 Hose for heater unit coolant inlet
2 Hose to the mechanical water pump connected with moulded hose A

Assembling the coolant hoses

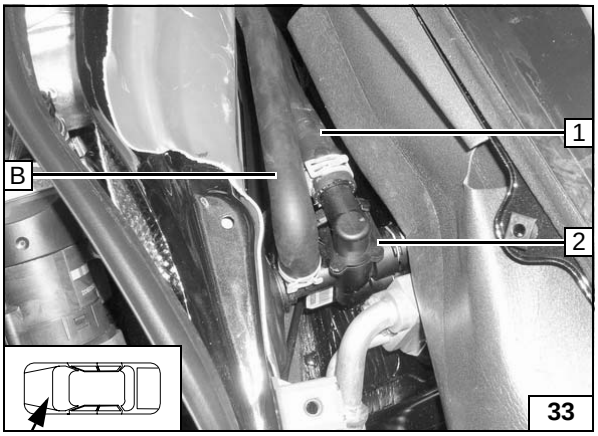


Replacing the Switch Valve

Loosen the hose on the top of the switch valve on the rear bulkhead and loosen the plug.
Loosen the hose connections by pulling out the spring wires [3x].
Remove the rubber sleeve.
Remove the valve.

Removing switch valve

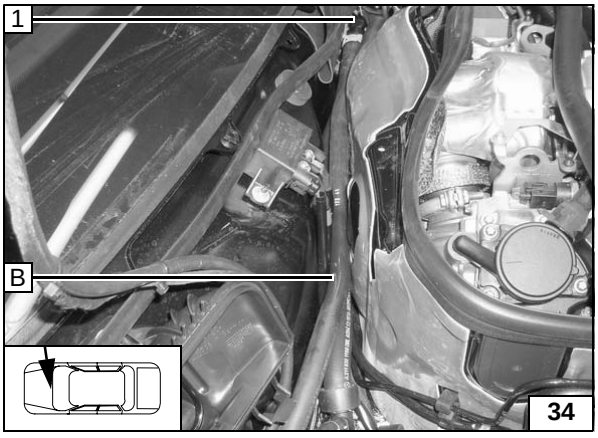
1 Protective rubber sleeve
2 Engine outlet hose



Before connecting, fill the coolant hoses with coolant!
Install new switch valve (5 connections).
Replace protective rubber sleeves.
Check that the connections are completely locked.
Reinstall the series coolant hose.
Fasten the additional moulded coolant hose with clamps and move to the right.

Switch valve assembly

B Moulded hose, spring band clamp Ø23 mm
1 Series coolant hose
2 Switch valve, 5 connections

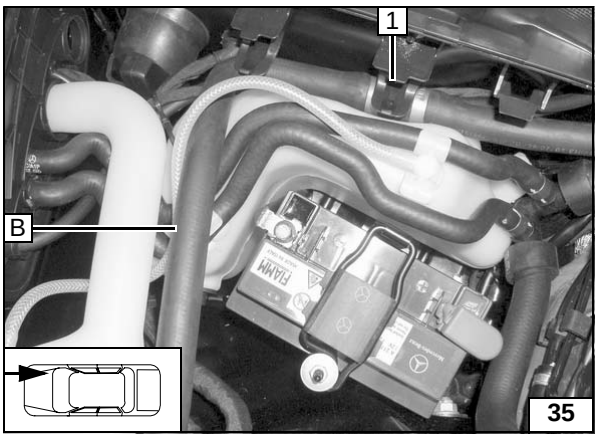


Create coolant connections

Route moulded coolant hose along rear bulkhead.
Position coolant hose as low as possible.

Routing the coolant hose

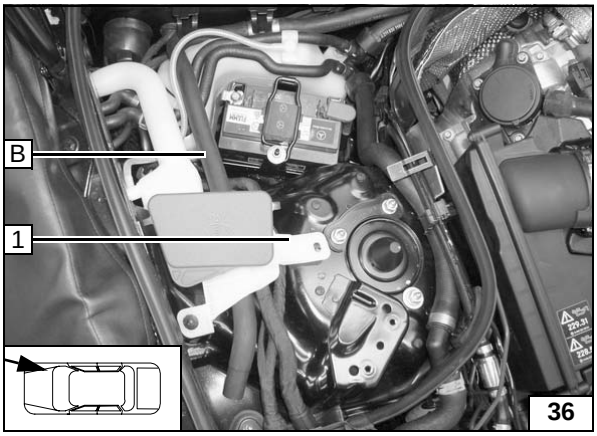
1 Switch valve, 5 connections
B Moulded hose



Route the moulded coolant hose under the guide in the bleed hose from the coolant reservoir.

Routing the Coolant hose

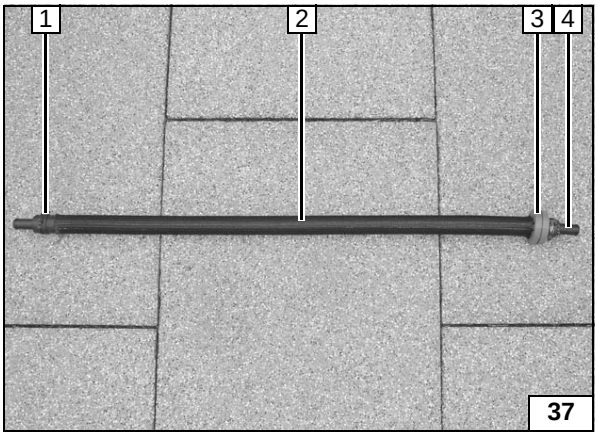
1 Bleed hose guide
B Moulded hose



Routing the coolant hose

Place the moulded coolant hose in the gap in the windshield fluid container and then along the wiring harnesses under the container shackle.

1 Windshield fluid container shackle
B Moulded coolant hose

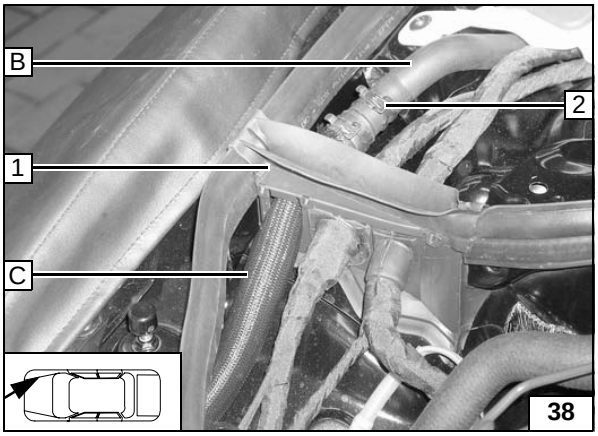


Coolant hose preassembly

Slide the long remnant of the braided hose protection on hose C l=800 mm.

On one side, slide on the red rubber insulator. On both sides, insert the coolant hose couplers and fasten with clamps.

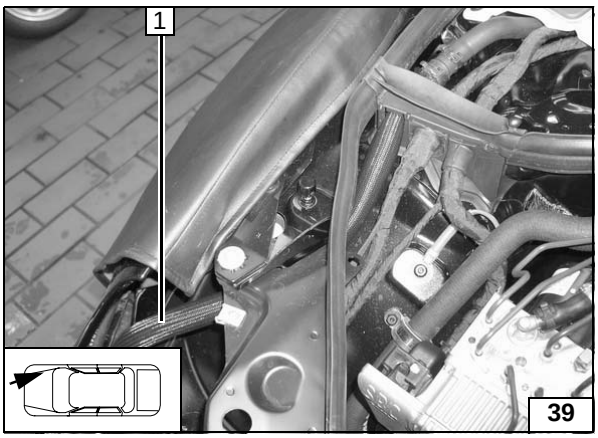
1 Spring band clamps Ø25 mm [2x]
2 Braided hose protection
3 Rubber insulator, red
4 Coolant hose coupler 15x18 [2x]



Place coolant hose in guide

Connect the preassembled coolant hose to the moulded hose and fasten with clamp.
Remove the filling from the conduit.
Move the coolant hose to the front through the guide.
Clip on the conduit cover.

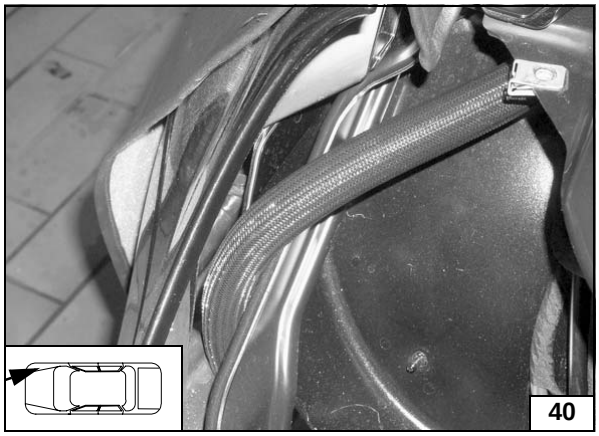
1 Conduit cover
B Moulded hose
2 Spring band clamp Ø22 mm
C Coolant hose



Installing coolant hose

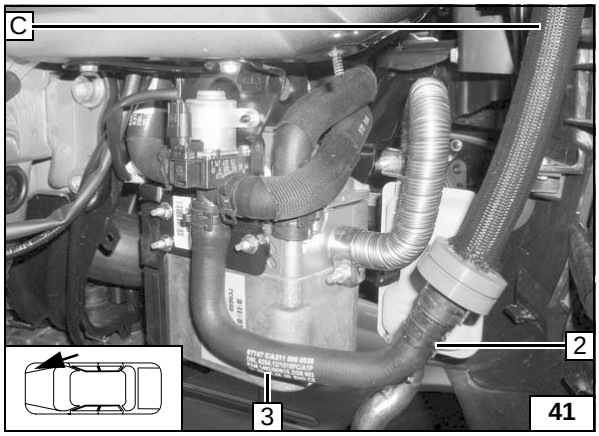
Route coolant hose under the cross rail according to Figure 39.
(Figure shows the CLS, always check for access to the headlight!)

1 Coolant hose C



Routing the coolant hose

Route the coolant hose on the side over the bracket and down into the fender. (Figure shows CLS, always check for access to the headlight!)



Coolant hose connection

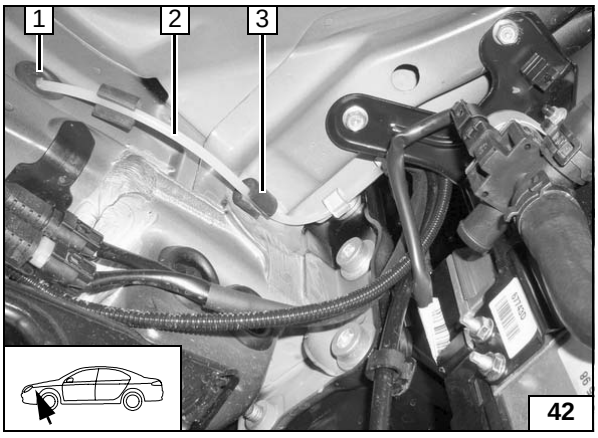
Connect the coolant hose to the preassembled hose on the solenoid valve.

C Coolant hose
2 Spring band clamp Ø22 mm
3 Preassembled hose on solenoid

Fuel Connection

Remove the vehicle's fuel tank cap, ventilate the fuel tank and reinstall fuel tank cap.
CAUTION!
Catch any fuel running off with an appropriate container.
Install the fuel line so that they are protected from impact by rocks!
Unless specified otherwise, always fasten using cable ties.
Fit the fuel line and wiring harness with edge protectors around sharp edges.

Attention:
The wiring harness to the fuel pump should be installed based on the wiring harness installation diagram.

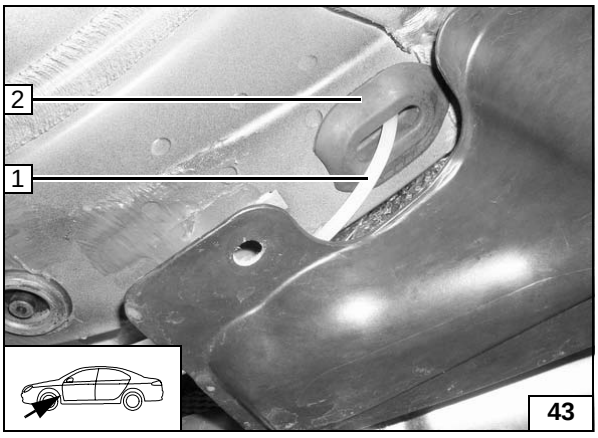


Installing the fuel line

Insert the fuel line in the frame side rail

Remove the round protective rubber sleeve in the side of the frame side rail and the long protective rubber sleeve on the underside of the frame side rail and punch a Ø 5mm hole.
Pull the round sleeve over the fuel line and insert the fuel line into the frame side rail through the round opening.
Slide on two rubber sliders on the fuel line to protect from wear.

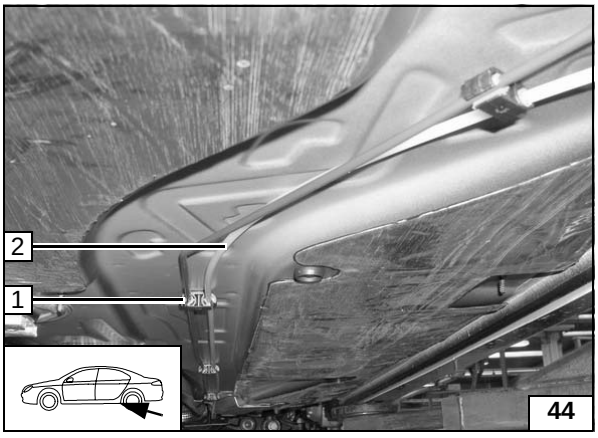
1 Round protective rubber sleeve
2 Fuel line
3 Rubber sliders [2x]



Routing the fuel line

Route the fuel line out of the long opening in the frame side rail.
Slide of grommet and insert in opening.

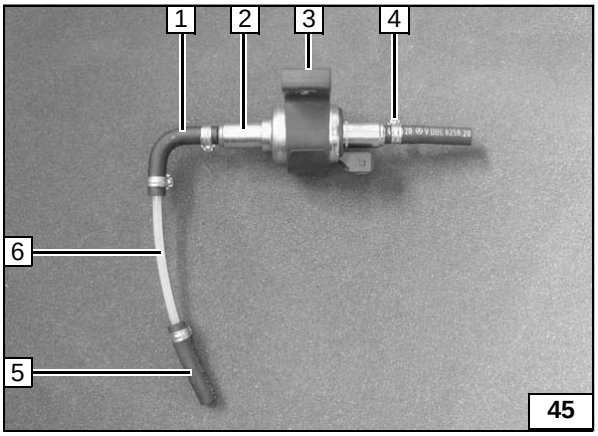
1 Fuel line
2 Long grommet



Fastening the fuel line

Replace the four single line clips with double line clips.
Clip in the brake line and fuel line.
Route the fuel line back to the installation location for the fuel pump.

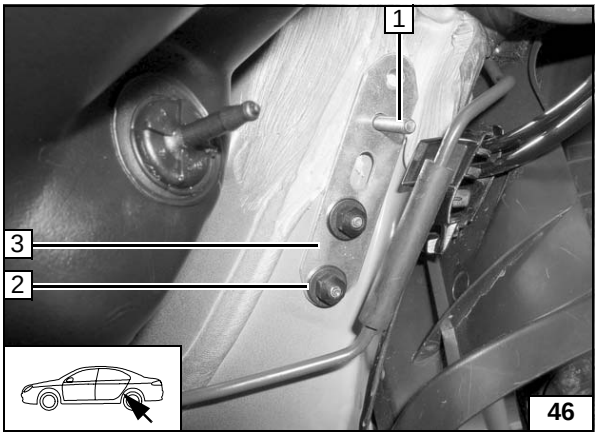
1 Double line clips [4x]
2 Fuel line



Assembling the fuel pump

1 Fuel line coupler 90°
2 Fuel pump
3 Rubber bracket
4 Universal clamp Ø10 mm, (white color identification) [4x]
5 Fuel line coupler [2x]
6 Mecanyl fuel line 1=130 mm

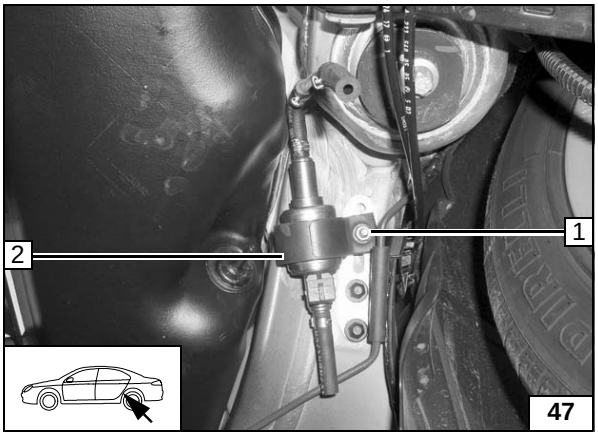
Fuel pump pre-assembly



Install the fuel pump mounting bracket (with M6x25 collar screw) on the original vehicle bolts with plastic nuts.

1 M6x25 collar screw
2 Plastic nuts [2x]
3 Fuel pump mounting bracket

Installing the fuel pump mounting bracket

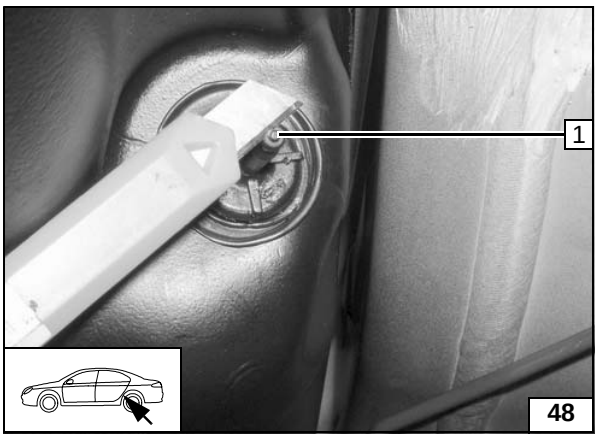


Note the installation position of the metering pump, see the "Installation Instructions".

Secure the fuel pump bracket to the M6x25 collar bolt with nut provided.

1 Flanged nut M6
2 Bracket with fuel pump

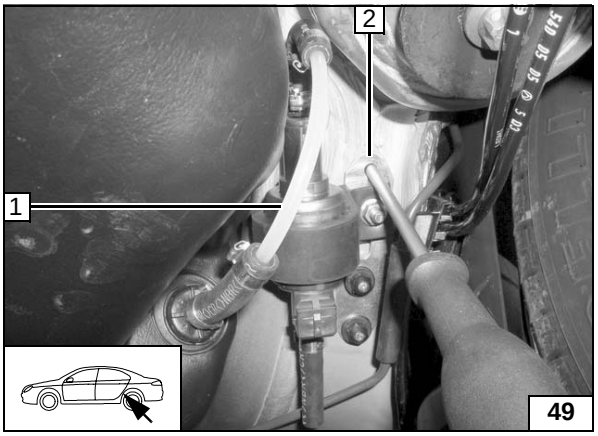
Assembling the fuel pump



Remove the cap and pull the end of the fuel nipple out of the fuel tank.
Cut the end of the fuel nipple off with a sharp knife. Immediately connect the fuel line between the fuel tank nipple and the suction side of the fuel pump and tighten clamp.

1 Fuel nipple on the tank

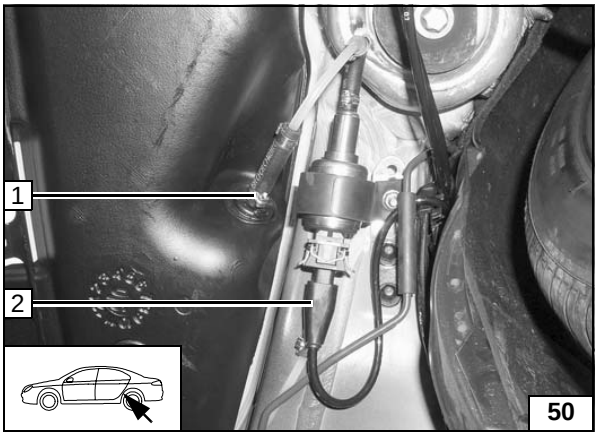
Cutting off the end of the fuel nipple



Insert a screw driver in the fuel pump mounting bracket hole and bend the strap to align it for free access to the fuel pump from the adjacent components.

1 Suction side of the fuel line
2 Fuel pump mounting bracket

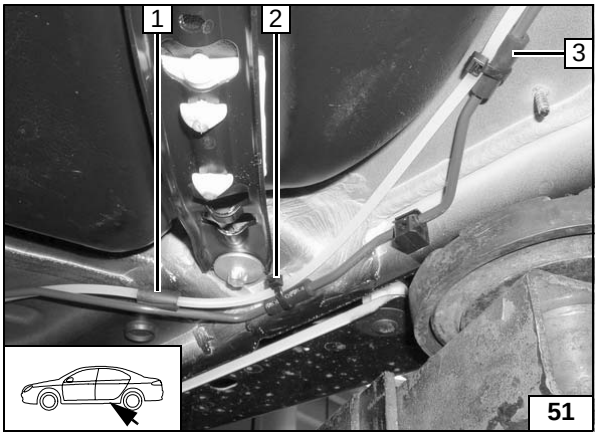
Align the fuel pump bracket



Cut the fuel line on the fuel pump into sections and connect to the fuel pump outlet (side with connector) with fuel line coupler and clamps.
Route the connector for the fuel pump to the fuel pump and connect.

1 Universal clamps Ø10 mm, (white color identification) [2x]
2 Fuel pump connector

Assembling the fuel pump connector



Install the fuel line along the original vehicle lines.
Where the hose sections (wear protection) are already located,fasten with cable ties.
Use split fuel hose as an additional wear protection if necessary.

1 Cut open end piece
2 Cable ties
3 Protection from wear (present)

Fuel line installation

Final Work

WARNING!

Reassemble disassembled components in reverse order.
Check that all hose lines, hose, spring band clamps and universal clamps, and all electrical connections are securely fastened.
Secure all loose lines using cable ties.
Check and adjust any disassembled or loose headlights after installation.
Spray heating unit components with anti-corrosion wax (Tectyl 100K, Order No. 111329).

- Start engine, bleed coolant circuit according to the vehicle manufacturer's specifications, top up with coolant.
- Warning! Only use manufacturer-approved coolant.
- Check the coolant system for leaks according to the manufacturer’s instructions.
- After assembly, follow the manufacturer’s instructions for star diagnosis to activate the auxiliary heater.
- Check that the auxiliary heating operates properly, see operating instructions / installation instructions.

Attach the "Switch off auxiliary heating before re-fuelling" sticker in the tank flap or the left side of the B-pillar.

Programming the T90 Remote Receiver

Attention

Ensure the SPAL receiver is plugged into the Y-adapter harness going to the T90 remote receiver.
Read through all steps before beginning programming procedure, some of the steps are time critical.

- Connect the battery.
- Disconnect the harness going to the T90 remote receiver and reconnect after 5 seconds.
- Within 7 seconds, press the “on” button on the SPAL hand-held transmitter for about 1 second.
- Check for proper operation of the transmitter and repeat procedure if necessary.

Enabling the Factory Equipped Timer Function

The Mercedes E Class comes factory equipped with a HVAC controller that can be programmed to control the Webasto heater On / Off times. STAR Diagnostics must be used to program this feature for the heater. Only a certified Mercedes dealership has the necessary diagnostic tool and information to properly set up these heater functions.

Refer to “Auxiliary heating / ventilation” in the vehicle’s owners manual for specific instructions on how to set heater On / Off times.

NOTES:

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Please rate the overall usefulness of the documentation.	1	2	3	4	5
Rate the completeness and clarity of the instructions: did the procedures provide enough detail?	1	2	3	4	5

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